Project Documentation

Interactive Learning with HistoGlobe

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HistoGlobe®

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1 Introduction

HistoGlobe is a interactive framework for people who want to learn history on another way than school.

2 User Centered Design Approach

HistoGlobe wanted to be helpful and usable for a specific target group: history teachers in schools. Therefore we looked for a school in the area of Weimar that could serve as a location for a field study. We found a school in Jena, 25 km east of Weimar, that offered us to develop an instance of HistoGlobe directly for the usage in class.

Lobdeburgschule in Jena-Lobeda is a public school for all students from grade 1 to 13. A history teacher in grade 12 invited us to conduct a field study in his class to test HistoGlobe directly in school. This gave us the chance to develop the visualization in a User Centered Design approach thoughout the semester. Two members of the project group went every two or three weeks to the teacher in Jena in the time from October 2014 until April 2015. We presented new concepts, asked specific questions about the interface and the usage of the visualization in class and new problems and questions about the concept raised that had to be clarified until the next meeting.

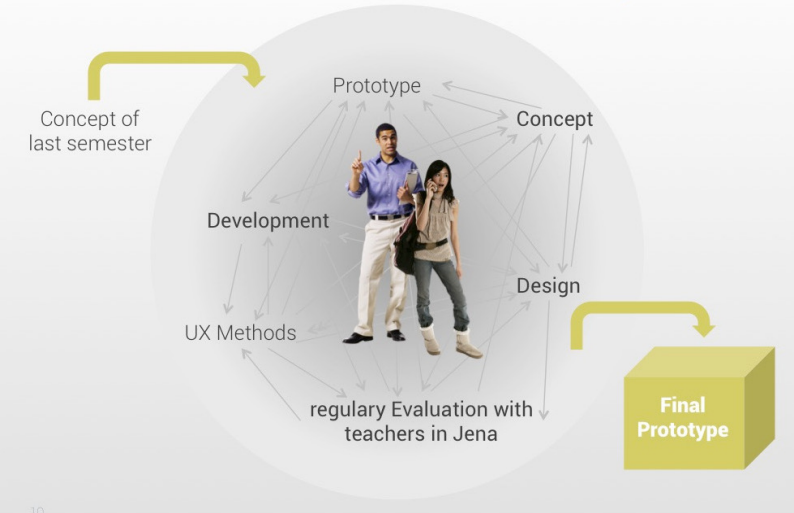

Figure 2.1: User Centered Design

Design Iterations

We had a lot of different design concepts. On the one hand we wanted to maximize the utility for the teacher to help him convey the necessary information in class but on the other hand design HistoGlobe in a way that we found suitable. We played around with orientation and the functionality of the timeline, the information about historical events on the map or the colors of the interface.

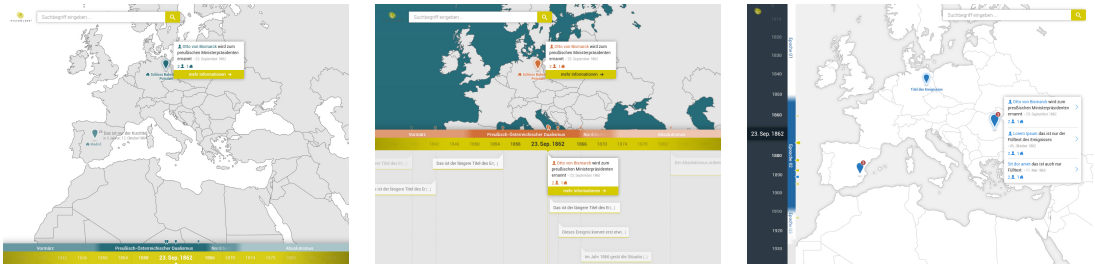

Figure 2.2: Several iterations of the design throughout the semester

In the next chapter we want to introduce the final elements of the user interface that were the result of the design iterations with the teacher.

3 User Interface Elements

The interface consists of five main elements: The **Map** is the central element showing the current countries with their names and their borders and the position of historical events, calles **Hivents** happening around the current date. This date is set on the **Timeline** which allows to control the temporal dimension: Set a new date and see the status of this day in history on the map. There are also **Topic Bars** on top of the timeline showing historical epochs in a specific time period. The sidebar on the right contains a **Search Bar** for retrieving information about historical events and a **Hivent List** for hivents of the selected topic. If an hivent is selected, there is a **Hivent Box** opening presenting the name, a short description and an image or video about the Hivent.

Additionally there are **Control Buttons** for zooming the map or timeline, toggling the full screen or high contrast modus for better readability in problematic lighting conditions in the classroom.

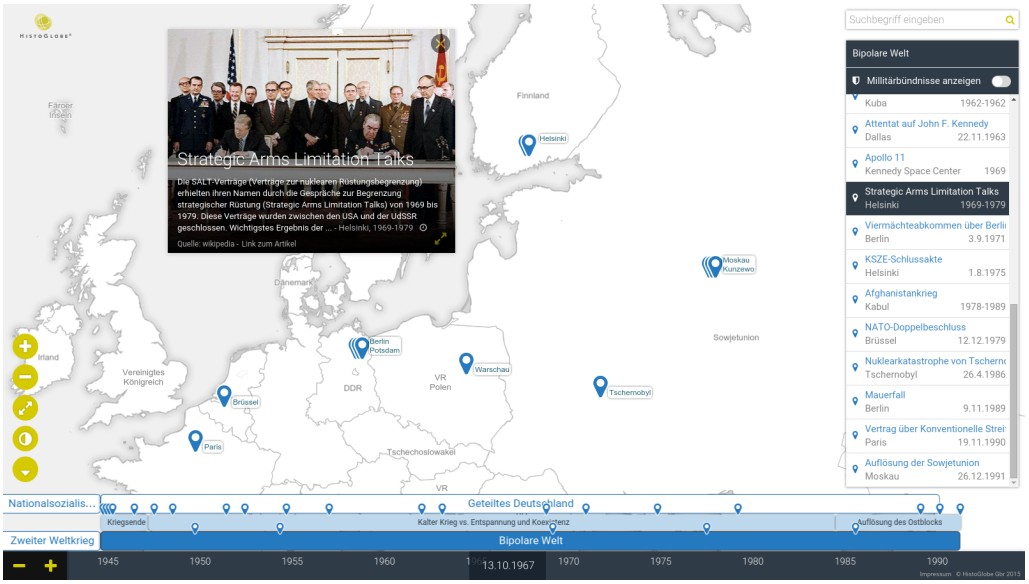

Figure 3.1: The final User Interface of HistoGlobe

3.1 Map

The map shows the status of the countries on Earth at this certain moment of history set in the timeline – the **NowDate**. For this project we used a self-made dataset of historic countries of whole Europe from 1945 until today and from Western, Northern, Southern and Central Europe from 1871 until 1945. We organized the data in a way that we can visualize historic changes of countries on the map. Finally we provided a funtionality to style the areas due to a current theme, for example all countries belonging to NATO at the NowDate get a blue background color.

3.1.1 Historic Countries

A country consists of a **geometry**, represented as a multipolygon in a geojson file, a **label** with the name and the position of the country and a set of historic **changes** stating at what date geometries and labels of countries have changed.

Geometry Everything is based on a dataset of the current countries in Europe from *Natural Earth Data* [1]. We extracted only the countries of Europe and loaded them into *QuantumGIS*, an open source GIS software for organizing, analyzing and visualizing geometry on Earth. For each historic country we found an historic map online and created the geometry of the country using the *Vector Geoprocessing Tools* of QuantumGIS. In 3.2 you can see the geometries of Germany from 1871 until today, from light green to dark green: The German Reich from 1871 until 1919, Weimar Republic and Third Reich after Treaty of Versailles from 1919 until 1945, reunified Germany after 1990 and the GDR from 1949 until 1990 without West Berlin.

[1] 1:10m Cultural Vectors | `http://www.naturalearthdata.com/downloads/10m-cultural-vectors/`

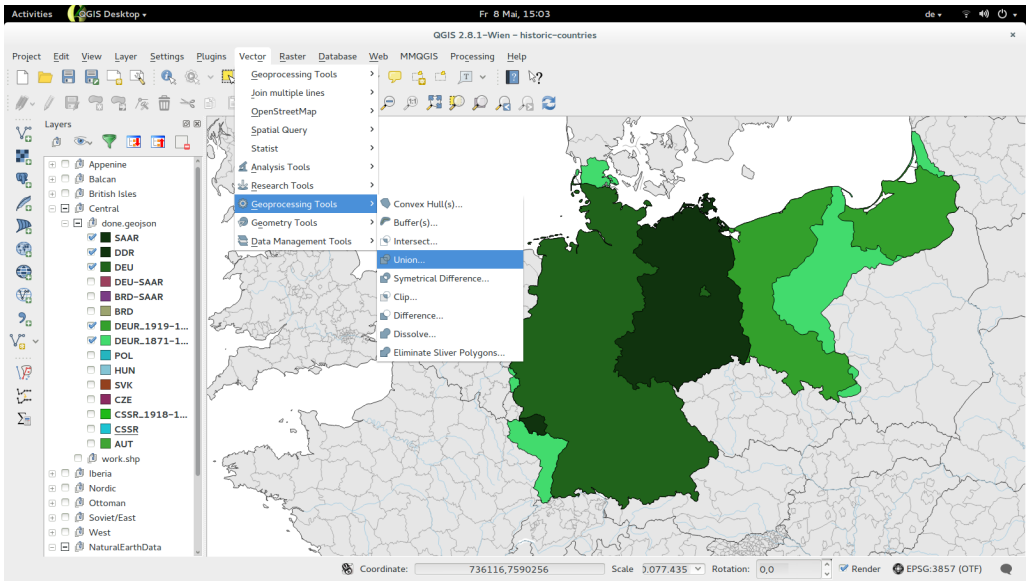

Figure 3.2: Geometry Manipulation of Historic Countries in QuantumGIS

Labels

Changes Because of the very problematic Usability of QuantumGIS and the mass of data that would have needed to be processed we have not reached the goal to create a data base of all historic countries in Europe from 1871 on, but only from 1945 on, due to the time constraint.

3.1.2 Architecture of Historic Changes

separated the countries areas and labels and

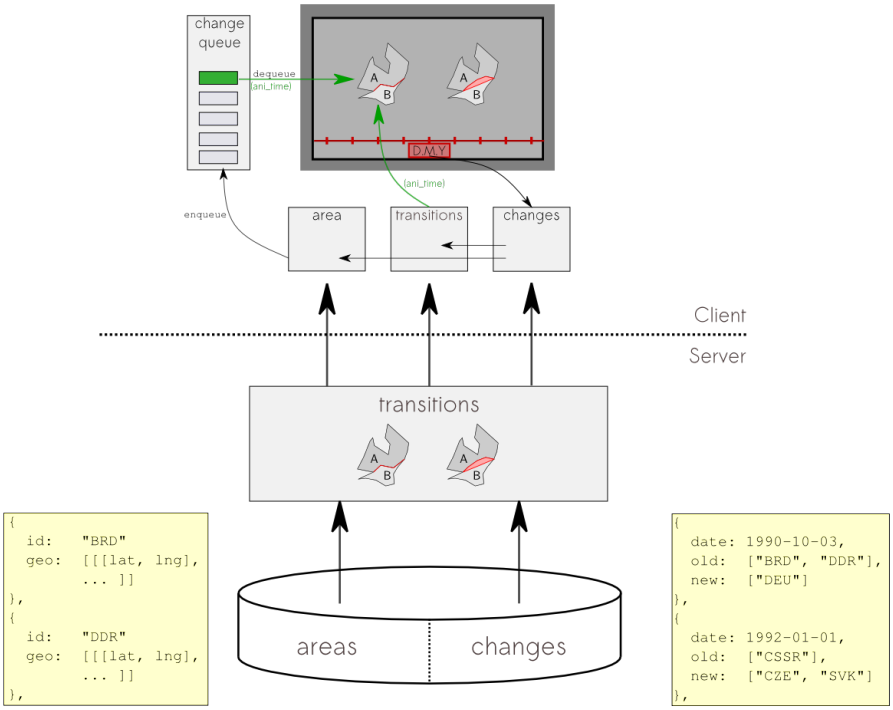

Figure 3.3: Architecture of historic countries on the map

3.1.3 Styling the Countries

3.2 Timeline and Topic Bars

Timeline von Mädelsmentor

3.3 Search Bar

Platzhalter

3.4 Hivent List

The central modul to navgate HistoGlobe in Histoglobe is the Hivent List. Here you can see Hivents with additional informations in one list ordered by date. Each Hivent has a name, a date and a location.

3.5 Hivent Boxes

Platzhalter

3.6 Control Buttons

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4 Field Study

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4.1 Usage as Teaching Material

4.2 Usage as Study Material

5 Conclusion

Platzhalter

5.1 Study Results

5.2 Discussion

5.3 Future Work